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REPUBLIEK VAN SUID-AFRIKA

PATENT KANTOOR  
DEPARTEMENT VAN HANDEL  
EN NYWERHEID

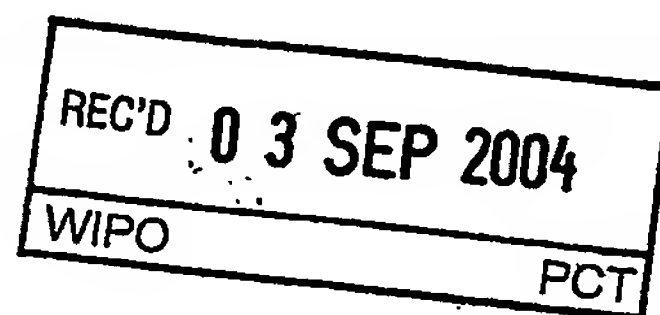


*Certificate*

REPUBLIC OF SOUTH AFRICA

PATENT OFFICE  
DEPARTMENT OF TRADE AND  
INDUSTRY

Hiermee word gesertifiseer dat  
This is to certify that



the documents annexed hereto are true copies of:

Application forms P.1, P.2, and provisional specification and drawings  
of South African Patent Application No. 2003/6252 as originally filed in  
the Republic of South Africa on 13 August 2003 in the name of  
HOLTZHAUSEN, JOHN MICHAEL for an invention entitled: " A CONDUIT  
THREADING DEVICE ".

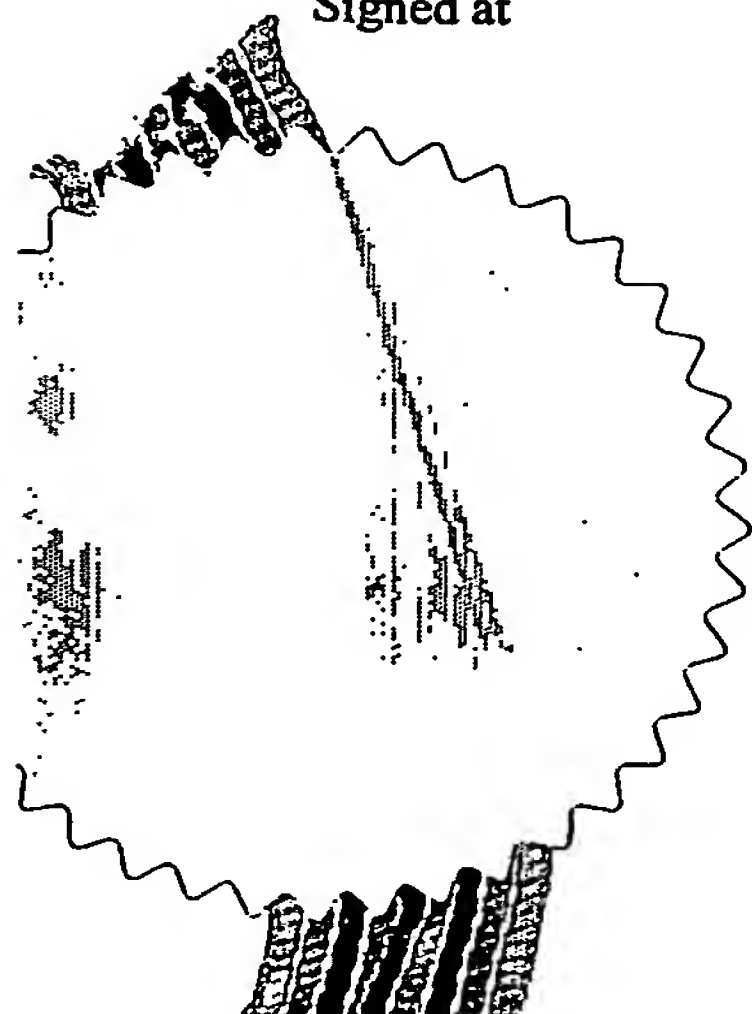
Geteken te  
Signed at  
**PRETORIA**

in die Republiek van Suid-Afrika, hierdie  
in the Republic of South Africa, this

18<sup>th</sup> dag van  
day of August 2004

.....  
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**PRIORITY DOCUMENT**  
SUBMITTED OR TRANSMITTED IN  
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REGISTER OF PATENTS

PATENT ACT, 1978

OFFICIAL APPLICATION NO.		LODGING DATE: PROVISIONAL		ACCEPTANCE DATE			
01	2003 / 6252	22	2003 -08- 13	47			
INTERNATIONAL CLASSIFICATION		LODGING DATE: COMPLETE		GRANTED DATE			
		23					
FULL NAME(S) OF APPLICANT(S) PATENTEE(S)							
HOLTZHAUSEN, John Michael							
APPLICANTS SUBSTITUTED				DATE REGISTERED			
1							
ASSIGNEE(S)				DATE REGISTERED			
1							
FULL NAME(S) OF INVENTOR(S)							
HOLTZHAUSEN, John Michael							
PRIORITY CLAIMED		COUNTRY		NUMBER		DATE	
N.B Use International abbreviation for country (See Schedule 4)		33		31		32	
TITLE OF INVENTION							
54							
A CONDUIT THREADING DEVICE							
ADDRESS OF APPLICANT(S) / PATENTEE (S)							
28 Firmount Road, Somerset West, 7130 WESTERN CAPE PROVINCE							
ADDRESS FOR SERVICE						REFERENCE	
74							
JAN S DE VILLIERS, 1 <sup>ST</sup> FLOOR ECCLESIA BUILDING, 71 PLEIN STREET (DOCEX 10) STELLENBOSCH, 7600, SOUTH AFRICA						H37-001	
PATENT OF ADDITION NO:				DATE OF ANY CHANGE			
61							
FRESH APPLICATION BASED ON				DATE OF ANY CHANGE			

REPUBLIC OF SOUTH AFRICA  
PATENTS ACT 1978

APPLICATION FOR A PATENT AND ACKNOWLEDGEMENT OF RECEIPT  
(Section 30(1) - Regulation 22)

The granting of a patent is hereby requested by the under mentioned applicant on the basis of the present application filed in duplicate.

Official Application No:	...	2003 / 6252	(i)	Applicant's or agent's reference	H37-001
Full name(s) of applicants(s)	HOLTZHAUSEN, John Michael				
Address(es) of applicant(s)	28 Firmount Road, Somerset West, 7130, Western Cape Province				
Title of Invention	A CONDUIT THREADING DEVICE				
The applicant claims priority as set out on the accompanying form P2. The earliest priority claimed is					
01 This application is for a patent of addition to Patent Application No:					
01 This application is a fresh application in terms of section 37 and is based on Application No:					

This application is accompanied by:

<input checked="" type="checkbox"/>	1.	2 copies of provisional specification of 6 pages
<input checked="" type="checkbox"/>	2.	Drawings of 3 sheets
<input type="checkbox"/>	3.	Publication particulars and abstract (Form P8 in duplicate).
<input type="checkbox"/>	4.	A copy of Figure 1 of the drawings (if any) for the abstract.
<input type="checkbox"/>	5.	A copy of an assignment of the invention.
<input type="checkbox"/>	6.	Priority documents.
<input type="checkbox"/>	7.	Translation of the priority documents
<input type="checkbox"/>	8.	An assignment of the priority rights.
<input checked="" type="checkbox"/>	9.	Form P2 (in duplicate)
<input checked="" type="checkbox"/>	10.	A declaration and power of attorney on Form P3
<input type="checkbox"/>	11.	Request for ante-dating on Form P4
<input type="checkbox"/>	12.	Request for classification on Form P9.
<input type="checkbox"/>	13.	Revenue stamps for late priority claim (third month)

21	01	
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Dated this 12 August, 2003

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Patent Attorney for Applicant(s)

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2003 -08- 13	
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REPUBLIC OF SOUTH AFRICA

PATENTS ACT, 1978

PROVISIONAL SPECIFICATION  
(Section 30(1) - Regulation 27)

OFFICIAL APPLICATION NO.		
21	01	2 0 0 3 / 6 2 5 2

LODGING DATE	
22	2003 -08- 1 3

FULL NAME(S) OF APPLICANT(S)	
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71	HOLTZHAUSEN, John Michael
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FULL NAMES(S) OF INVENTOR(S)	
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72	HOLTZHAUSEN, John Michael
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TITLE OF INVENTION	
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54	A CONDUIT THREADING DEVICE
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REPUBLIC OF SOUTH AFRICA

PATENTS ACT, 1978

PROVISIONAL SPECIFICATION  
(Section 30(1) - Regulation 27)

OFFICIAL APPLICATION NO.		
21	Q1.	. 2 0 0 3 / 6 2 5 2

LODGING DATE	
22	

FULL NAME(S) OF APPLICANT(S)	
71	HOLTZHAUSEN, John Michael

FULL NAMES(S) OF INVENTOR(S)	
72	HOLTZHAUSEN, John Michael

TITLE OF INVENTION	
54	A CONDUIT THREADING DEVICE

## A CONDUIT THREADING DEVICE

### 5 FIELD OF THE INVENTION

This invention relates to a conduit threading device for introducing an electrical wire or pull-cord into a conduit through which it is to pass. In particular, but not exclusively, the invention relates to a device for assisting in  
10 threading electrical wiring or a pull cord therefor through a conduit whilst simultaneously serving to clear the conduit of any debris or the like.

### BACKGROUND TO THE INVENTION

15 It is known that threading electrical wires or pull cords therefor through conduits in buildings is time consuming and difficult due to the fact that the conduits may be long and have many bends. The problem is often aggravated by the fact the debris is present in the conduit.

20 Known methods for threading electrical wires or pull cords through conduits make use of a long spring steel wire, often referred to in the trade as a fishtape, that is manually pushed through the conduit from one end to the other. The electrical wire may then be secured to the spring steel wire and pulled through the conduit. These known methods are time consuming as  
25 the steel wire has to be forced around the internal bends of the conduit, sometimes with great difficulty, and sometimes without success at all.

### OBJECT OF THE INVENTION

30 It is an object of this invention to provide a simple, yet highly effective conduit threading device for assisting in introducing electrical wires or pull cords

through a conduit in buildings or other installations in a manner that addresses the difficulties outlined above.

## SUMMARY OF THE INVENTION

5

It is to be understood that the term pull cord as used in this specification is intended to refer to a cord that is commonly introduced into a conduit firstly and then used in drawing electrical wires through the conduit.

10 In accordance with one aspect of this invention there is provided a conduit threading device for introducing electrical wires or pull cords through a conduit comprising a shuttle having an operatively leading and trailing section and wherein the trailing section has a diameter that is commensurate with the internal diameter of the conduit and attachment means for the attachment of  
15 an electrical wire or pull cord to be pulled through the conduit to the shuttle.

Further features of the device provide for the shuttle to comprise a generally bell-shaped somewhat flexible body; for the shuttle to have a semi-rigid shaft running longitudinally through its centre for with the attachment means at its  
20 operatively trailing end; for the body of the shuttle to comprise a diaphragm manufactured from silicon rubber or any other suitable flexible material; for the attachment means of the trailing section to comprise a wire loop; and for the pull cord to comprise a nylon or other suitably strong string.

25 A still further optional feature of this aspect of the invention provides for the operatively leading section of the shuttle to optionally have a protruding wire loop for assisting in the manual retrieval of the shuttle from the conduit as may be required.

In accordance with a second aspect of the invention, there is provided a  
30 method of the threading an electrical wire or pull cord through a conduit, the method comprising attaching an end of the electrical wire or pull cord to a shuttle as defined above, and causing the shuttle to move from one end of a



conduit to the other as a result of differential pressure created in the conduit across the shuttle.

5 A further feature of this aspect of the invention provides for the differential pressure to be created by a suction device having attachment means for attaching it device to an open end of a conduit.

10 Further features of this aspect of the invention provide for suction device to comprise a standard dual action operatively vertically orientated hand pump; and for the attachment means for attachment of the suction device to the conduit opening to comprise a hose having a nozzle at its one end for connection to the conduit.

15 In accordance with a third aspect of the invention, there is provided a suction device having attachment means particularly adapted to be attached to an open end of a conduit as defined above and having a gravity separations chamber for collecting debris drawn out of a conduit during carrying out of the method of this invention.

20 In order that the above and other features of the invention may be more fully understood one embodiment thereof will now be described with reference to the accompanying drawings.

## 25 BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings:-

Figure 1(a) is an illustration of the application of the invention;

30 Figure 1(b) is a sectional elevation of a section of conduit pipe showing the shuttle capsule of the invention *in situ* therein;

Figure 2 is an isometric view illustrating the application of the method of the invention;



Figure 3 is a perspective side view illustrating the dual action hand pump according to the invention.

#### DETAILED DESCRIPTION WITH REFERENCE TO THE DRAWINGS

5

In the embodiment of the invention illustrated in the drawings, a device for assisting in threading electrical wiring or a pull cord therefor through a conduit, is generally indicated by numeral (1), and comprises a shuttle (2) for introduction into one end of an electrical conduit pipe (3), the shuttle having  
10 an operatively leading section (4) and trailing section (5).

The body of the shuttle (2) is of generally bell-shape with the flared end defining the trailing section (5) and having a maximum diameter that is commensurate with the internal diameter of the conduit. The shuttle is thus  
15 generally in the form of a flexible diaphragm (5) manufactured from silicon or other suitable material. The leading section is optionally fitted with a loop or protrusion (6) for assisting in the retrieval of the shuttle (2) as and when necessary and the trailing section has attachment means, preferably in the form of a loop (7), for attachment of the shuttle to an electrical wire or pull  
20 cord (8).

For use, a suction device (9) is attached to the downstream open end of the conduit (10). In the preferred embodiment of the invention, the suction device is a dual action upright hand operated pump. The hand pump is  
25 attached to the opening of the conduit (10) by means of a hose (11) having a nozzle (12) at one end for engagement with the conduit opening and being attached to the pump at the other end (13) by way of a gravity separations chamber (14) that in turn is connected to the pump.

The shuttle (2) with the pull cord (8) attached to it is inserted into the other  
30 open end of the conduit (3) so that only the pull cord protrudes from the conduit. Due to the fact that the trailing section (5) of the shuttle has a diameter commensurate with the inner diameter of the conduit pipe an

effective seal is created between such outer diameter and the conduit that enables a vacuum to be created in the conduit. The hand pump is operated to create such a vacuum, and thus a differential pressure in the conduit, that moves the shuttle (2) and pull cord (8) from one end of the conduit to the  
5 other. If the shuttle (2) arrives at the downstream end of the conduit it can be pulled out manually by means of the protrusion (6) on its leading section.

The shuttle (2) is then detached from the pull cord (8) so that the latter protrudes from both ends of the conduit. The electrical wiring may then be  
10 attached to one end of the pull cord (8) and can be pulled through the conduit with relative ease.

The pump also serves the purpose of sucking any debris in the conduit into the gravity separations chamber of the pump prior to the commencement of  
15 the wiring operation itself. Gravitational forces cause the debris to fall to the bottom of the gravity separations chamber which serves as a trap.

It will be understood that the invention provides an extremely simple yet highly effective device for threading electrical wiring through a conduit and  
20 removing debris from the conduit. Also, numerous variations may be made to the embodiment of the invention described above without departing from the scope hereof.

Dated this: *13th* day of August 2003

25



.....  
for the applicant

## **A CONDUIT THREADING DEVICE**

### **5 FIELD OF THE INVENTION**

This invention relates to a conduit threading device for introducing an electrical wire or pull-cord into a conduit through which it is to pass. In particular, but not exclusively, the invention relates to a device for assisting in  
10 threading electrical wiring or a pull cord therefor through a conduit whilst simultaneously serving to clear the conduit of any debris or the like.

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15 It is known that threading electrical wires or pull cords therefor through conduits in buildings is time consuming and difficult due to the fact that the conduits may be long and have many bends. The problem is often aggravated by the fact the debris is present in the conduit.

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### **OBJECT OF THE INVENTION**

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through a conduit in buildings or other installations in a manner that addresses the difficulties outlined above.

## SUMMARY OF THE INVENTION

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30 method of the threading an electrical wire or pull cord through a conduit, the method comprising attaching an end of the electrical wire or pull cord to a shuttle as defined above, and causing the shuttle to move from one end of a

conduit to the other as a result of differential pressure created in the conduit across the shuttle.

5 A further feature of this aspect of the invention provides for the differential pressure to be created by a suction device having attachment means for attaching it device to an open end of a conduit.

10 Further features of this aspect of the invention provide for suction device to comprise a standard dual action operatively vertically orientated hand pump; and for the attachment means for attachment of the suction device to the conduit opening to comprise a hose having a nozzle at its one end for connection to the conduit.

15 In accordance with a third aspect of the invention, there is provided a suction device having attachment means particularly adapted to be attached to an open end of a conduit as defined above and having a gravity separations chamber for collecting debris drawn out of a conduit during carrying out of the method of this invention.

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In the drawings:-

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Figure 2 is an isometric view illustrating the application of the method of the invention;

Figure 3 is a perspective side view illustrating the dual action hand pump according to the invention.

#### DETAILED DESCRIPTION WITH REFERENCE TO THE DRAWINGS

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The shuttle (2) with the pull cord (8) attached to it is inserted into the other open end of the conduit (3) so that only the pull cord protrudes from the conduit. Due to the fact that the trailing section (5) of the shuttle has a diameter commensurate with the inner diameter of the conduit pipe an



effective seal is created between such outer diameter and the conduit that enables a vacuum to be created in the conduit. The hand pump is operated to create such a vacuum, and thus a differential pressure in the conduit, that moves the shuttle (2) and pull cord (8) from one end of the conduit to the other. If the shuttle (2) arrives at the downstream end of the conduit it can be pulled out manually by means of the protrusion (6) on its leading section.

The shuttle (2) is then detached from the pull cord (8) so that the latter protrudes from both ends of the conduit. The electrical wiring may then be attached to one end of the pull cord (8) and can be pulled through the conduit with relative ease.

The pump also serves the purpose of sucking any debris in the conduit into the gravity separations chamber of the pump prior to the commencement of the wiring operation itself. Gravitational forces cause the debris to fall to the bottom of the gravity separations chamber which serves as a trap.

It will be understood that the invention provides an extremely simple yet highly effective device for threading electrical wiring through a conduit and removing debris from the conduit. Also, numerous variations may be made to the embodiment of the invention described above without departing from the scope hereof.

Dated this..... day of August 2003

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for the applicant



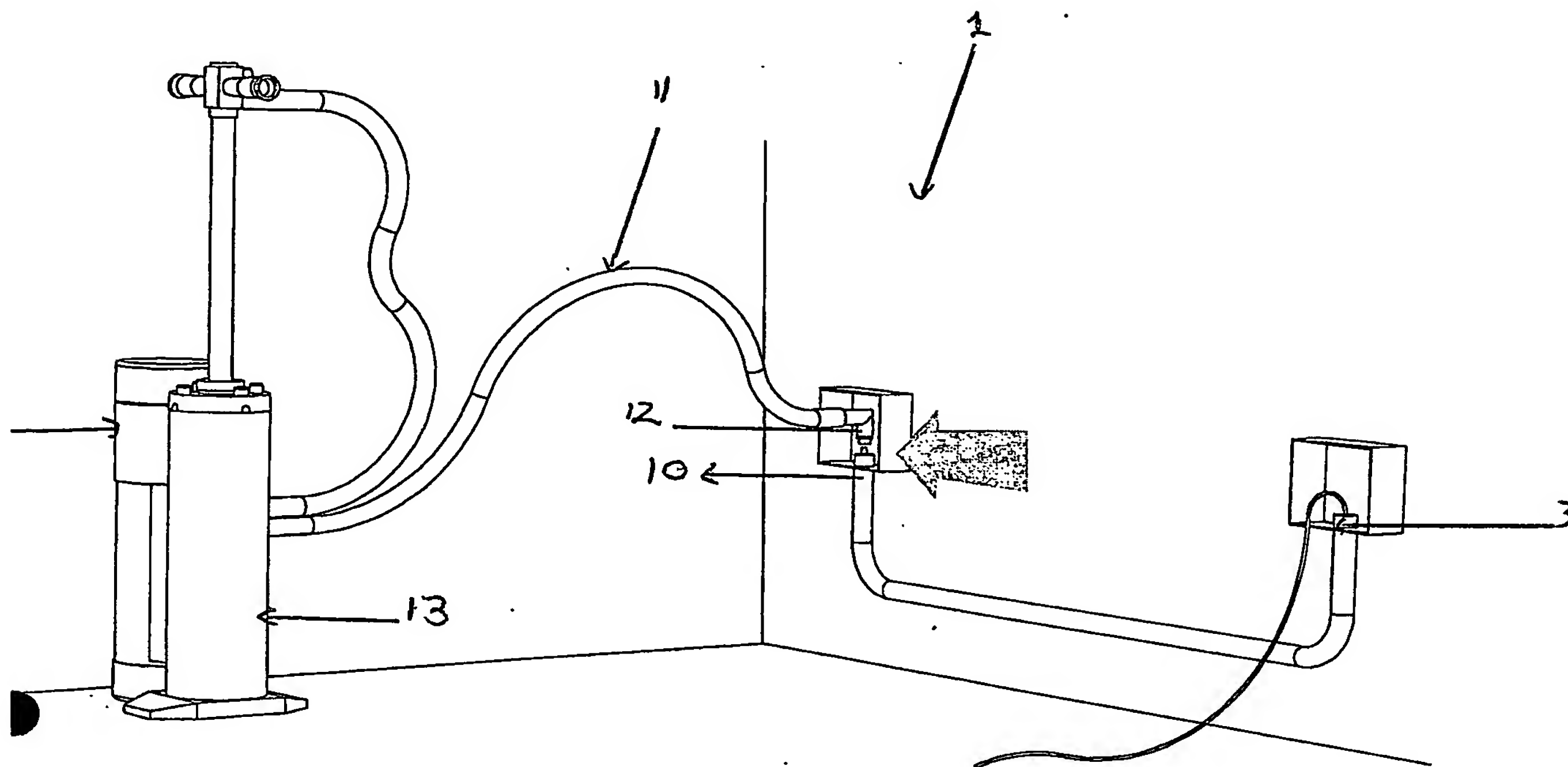


FIGURE 1(A)

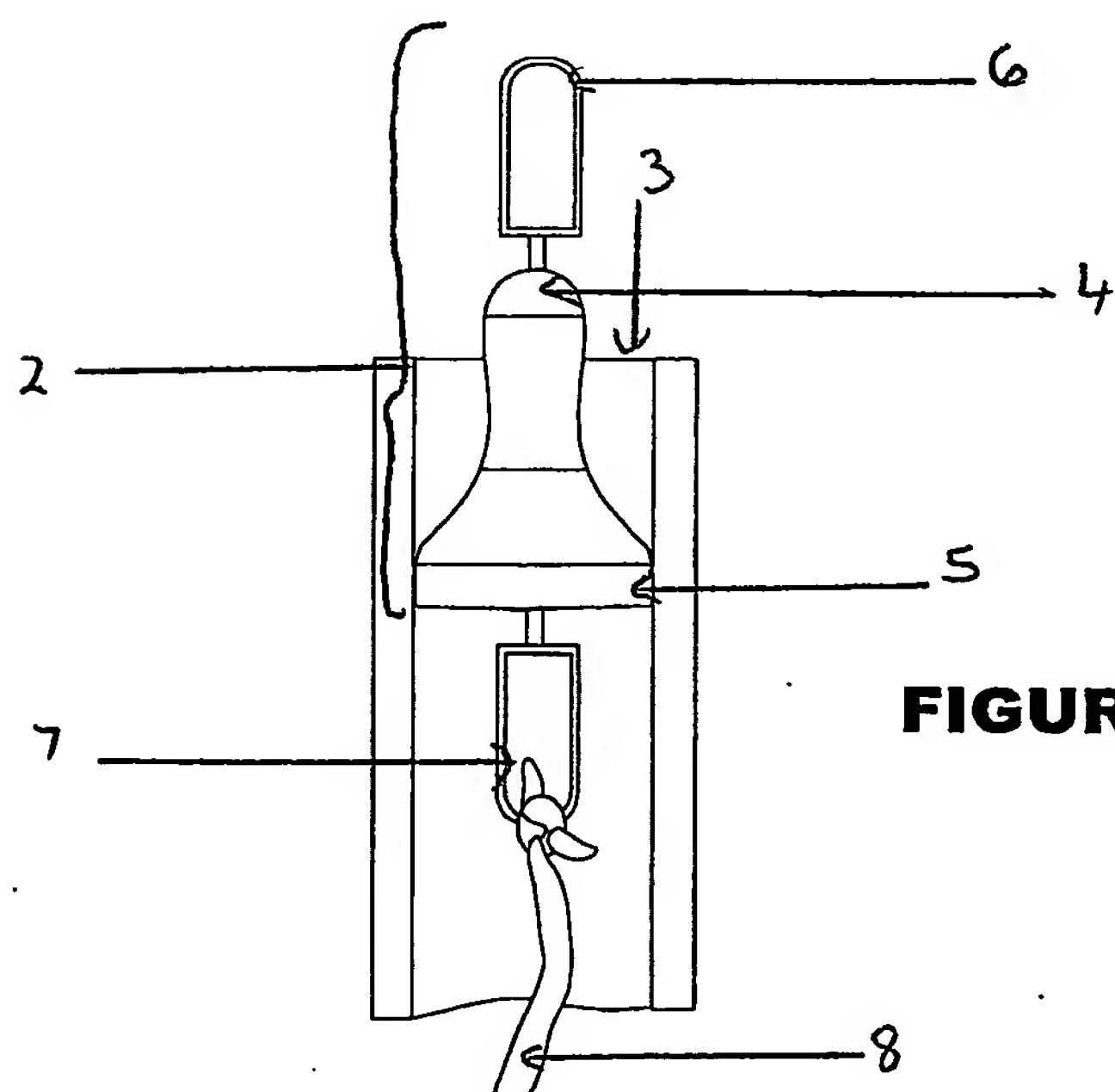


FIGURE 1(B)

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APPLICANTS ATTORNEY

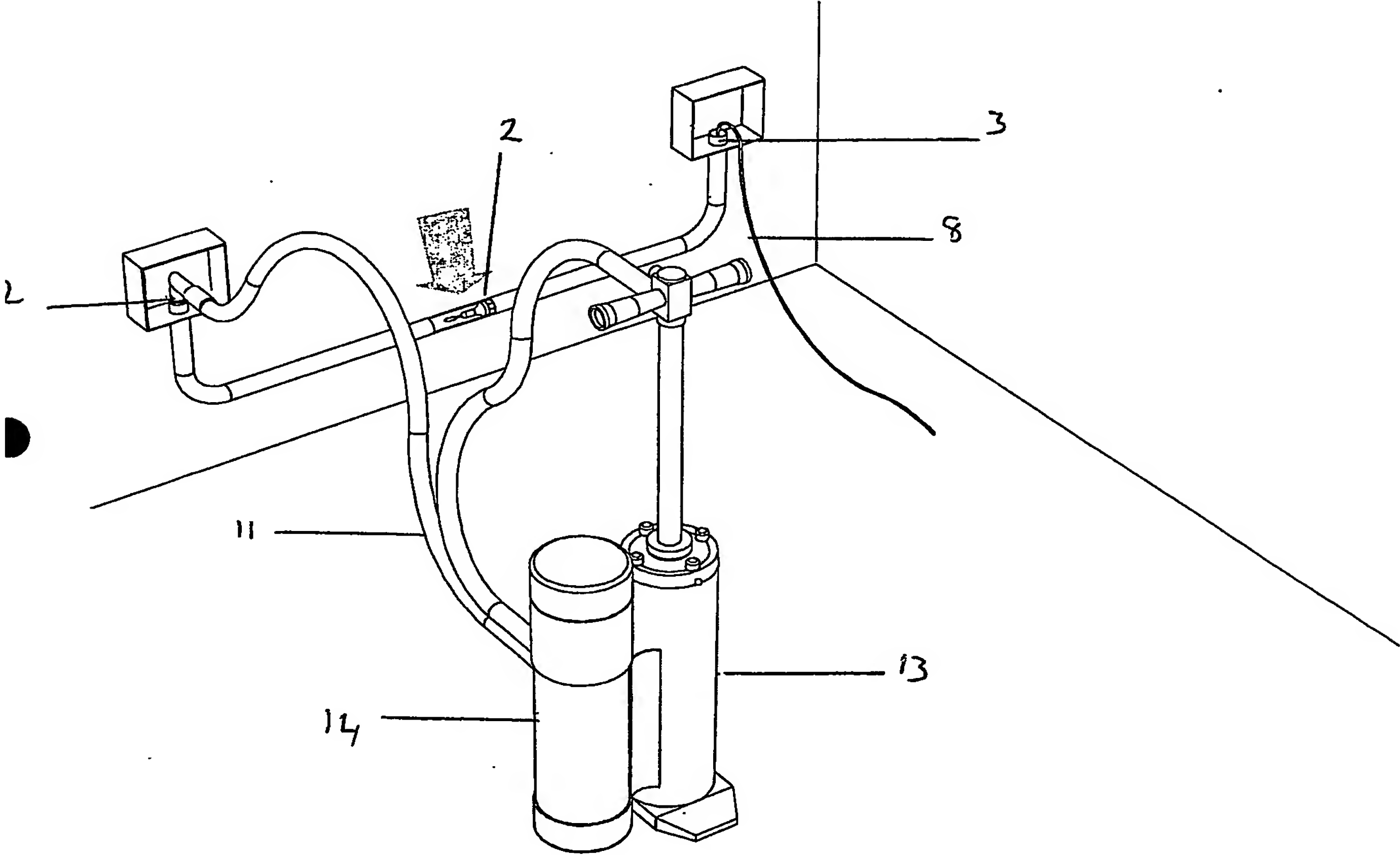


FIGURE 2

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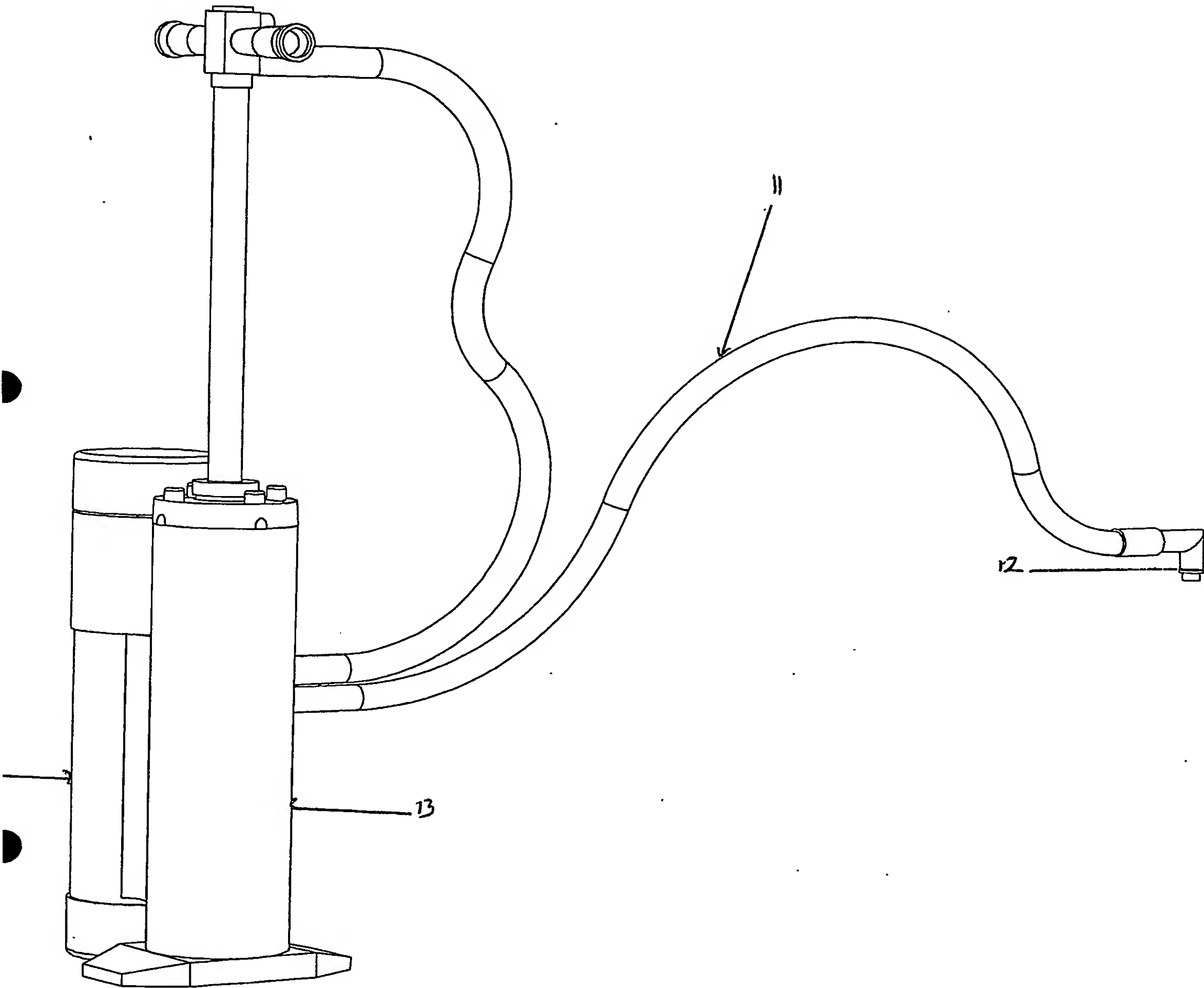


FIGURE 3

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